As this sentence forms part of this year's great annual scientific manifesto, with which Presidents of the British Association for the Advancement of Science are wont to favour your readers, I trust your love of scientific precision will help me to point out that, "*prior*" to the very serious accident near Manchester, public attention "*was*" directed in England to the powerfully explosive nature of this substance itself through the medium of a very serious publication in London, or rather through the medium of two very serious publications—viz. a patent and a paper read before the Chemical Society, as you will see from the following statement,[1] which I drew up last spring at the request of and, as I hoped, for the use of my distinguished fellow-inventor, the President of the Government Committee on Explosives, and now President of the British Association for the Advancement of Science. H. SPRENGEL.

54 Denbigh Street, S.W., September 13.

A Recently Established Bird Migration.

BURIED in the heart of a newspaper article of the 4th inst., on incorporated Worthing, is a statement which, if it may be relied on, seems to me of curious, if not unique, interest, inasmuch as it dates very closely what seems now an annual migration of birds. After speaking of West Tarring as dividing with Lancing the title of the capital of English Figland, the journalist (*Daily Telegraph*, September 4) goes on to say, "There it was that Thomas A'Becket planted the first slip—now a mouldering stump—whence, it is said, all these shady alleys, redolent of syrupy sweetness, derive their origin. There is no handsomer shrub-tree than the fig, spreading forth its many-veined, broad leaves in grateful shade, while the fruit, varying from juicy green acorns to great purple bulbs—I bought some yesterday four inches in length—peer boldly forth from every available twig. Even that discriminating bird, the Italian beccafico, has become aware, in some mysterious way, of the existence of the Worthing fig-gardens, and comes over to spend a pleasant six weeks among them, just as we go for change of air to Switzerland or the Black Forest. This is the time for his arrival, and if I may judge by certain well-picked figs on the Tarring trees, I should say that he had taken up his quarters somewhere in the immediate vicinity of the noble thirteenth century church."

We may reasonably allow a century or so from the time of Henry II., before the fig-tree would be sufficiently acclimatized and established at Worthing to attract such visitors. And then, always supposing that it is the Italian beccafico (*Motacilla curruca*, Linn.) which comes, it seems probable that he follows fig-harvest along the Riviera, and up from Southern to Northern France; though how so delicate and toothsome a mouthful manages to run the gauntlet of the continual potting which almost exterminates bird life over great breadths of that long journey is more difficult to understand. And then is it possible that a bold spirit of adventure, rather than any well-grounded certainty of knowledge, led the first comers across the Channel? Because it is a strange fact vouched for by more than one observer, and which goes dead against the old unerring instinct theory, that occasionally in the autumn migration, long streams of our emigrants make boldly out to sea from our westernmost coast where there is no land nearer than the east coast of America, and the whole flight must needs perish.

But as this whole question of bird migration is still one of the most dimly-lighted regions in the whole arcana of natural history, and its beginnings in most cases go far back into immemorial time, I trust—despite the great demands just now of the British Association reports on your valuable space—that you will kindly give some competent ornithologist, resident at, or a visitor to Worthing, the opportunity of confirming, if the fact is so, that the Italian fig-pecker has formed the habit of attending fig ripening there since the time of Thomas A'Becket.

HENRY CECIL.

Bregner, Bournemouth, September 9.

The Common Sole.

MR. CUNNINGHAM, in his valuable "Treatise on the Common Sole," recently published, remarks (p. 125), "Why I have failed to obtain soles in the first year of their growth, after the stage of those found at Mevagissey in May, I cannot understand." It may be of interest to those who are studying this subject to know that, among the investigations organized by the Royal Dublin Society, and intrusted to my care on board the s.s. *Fingal* off the west of Ireland, during the past summer, the working out of the life-history of sea fish took a prominent place.

In August, soles born in February and March were not found in shallow water, though careful search was made for them. Outside 50 fathoms we began to meet them. In 80 fathoms we took them in abundance, and also found them in the stomachs of other fish captured by the trawl in similar depths.

WILLIAM SPOTSWOOD GREEN,
H.M. Inspector of Irish Fisheries.

Dublin Castle, September 22.

[1] We have not considered it necessary to print this statement.—ED.

A Meteor.

AT about 7.49 p.m. on the 14th inst., I saw from the garden of the Pavilion Hotel, Folkestone, an unusually large and bright meteor descend towards the north-west point of the horizon. The long and full tail left behind, like that of a large rocket, enabled one to trace its path, which at its highest point was about 6° or 8° north of Arcturus. The meteor, which was very much larger apparently than Jupiter, descended very slowly along a slightly wavy line of a mean inclination of about 75° to the horizon. The end of its path was hidden by houses on the "Bayle." J. PARNELL.

Pavilion Hotel, Folkestone, September 19.

THE WHITE RHINOCEROS.

WRITING of his sporting adventures on the River Se-whoi-whoi (a confluent of the Umniati) in Southern Mashuna-land, Mr. F. Selous, in the *Field* of August 16, says as follows:—

"It was within a mile of this spot that, two years previously [*i.e.* in 1883], I shot two white rhinoceroses (*Rhinoceros simus*), the last of their kind that have been killed (and, perhaps, that *ever will be killed*) by an Englishman. They were male and female, and I preserved the skin of the head and the skull of the former for the South African Museum in Cape Town, where they now are. I shall never cease to regret that I did not preserve the entire skeleton for our own splendid Museum of Natural History at South Kensington; but when I shot the animal I made sure I should get finer specimens later on in the season. However, one thing and another prevented my visiting the one spot of the country where I knew that a few were still to be found, and now those few have almost, if not quite all, been killed; and, to the best of my belief, the great white, or square-mouthed, rhinoceros, the largest of modern terrestrial mammals after the elephant, is on the very verge of extinction, and in the next year or two will become absolutely extinct. If in the near future some student of natural history should wish to know what this extinct beast really was like, he will find nothing in all the museums of Europe and America to enlighten him upon the subject but some half-dozen skulls and a goodly number of the anterior horns."

The skin of the head of the male white rhinoceros shot by Mr. Selous on the occasion spoken of above was forwarded by the authorities of the South African Museum to Mr. E. Gerrard, Jun., of Camden Town, to be mounted for their collection. Mr. Gerrard, knowing the rarity of specimens of this animal, was kind enough to allow the mounted head to be exhibited at a meeting of the Zoological Society of London in 1886, along with a corresponding head of the (so-called) black rhinoceros (*R. bicornis*), so that an easy comparison might be made between them.

The differences between the external forms of the heads of the two African rhinoceroses, though not, perhaps, so striking as the well-known differences in their skulls, are sufficiently obvious on comparison. I will venture to point them out in the pages of NATURE, in the hope that the attention of the several exploring parties now traversing Mashuna-land and Matabeli-land may be called to this subject, and that, in case of a straggling

survivor of the white rhinoceros being met with, it may be carefully preserved for the National Collection at South Kensington.

As will be seen by the outline drawings of the heads,[1] the points by which this part of the two animals may be distinguished present themselves very appreciably. In the first

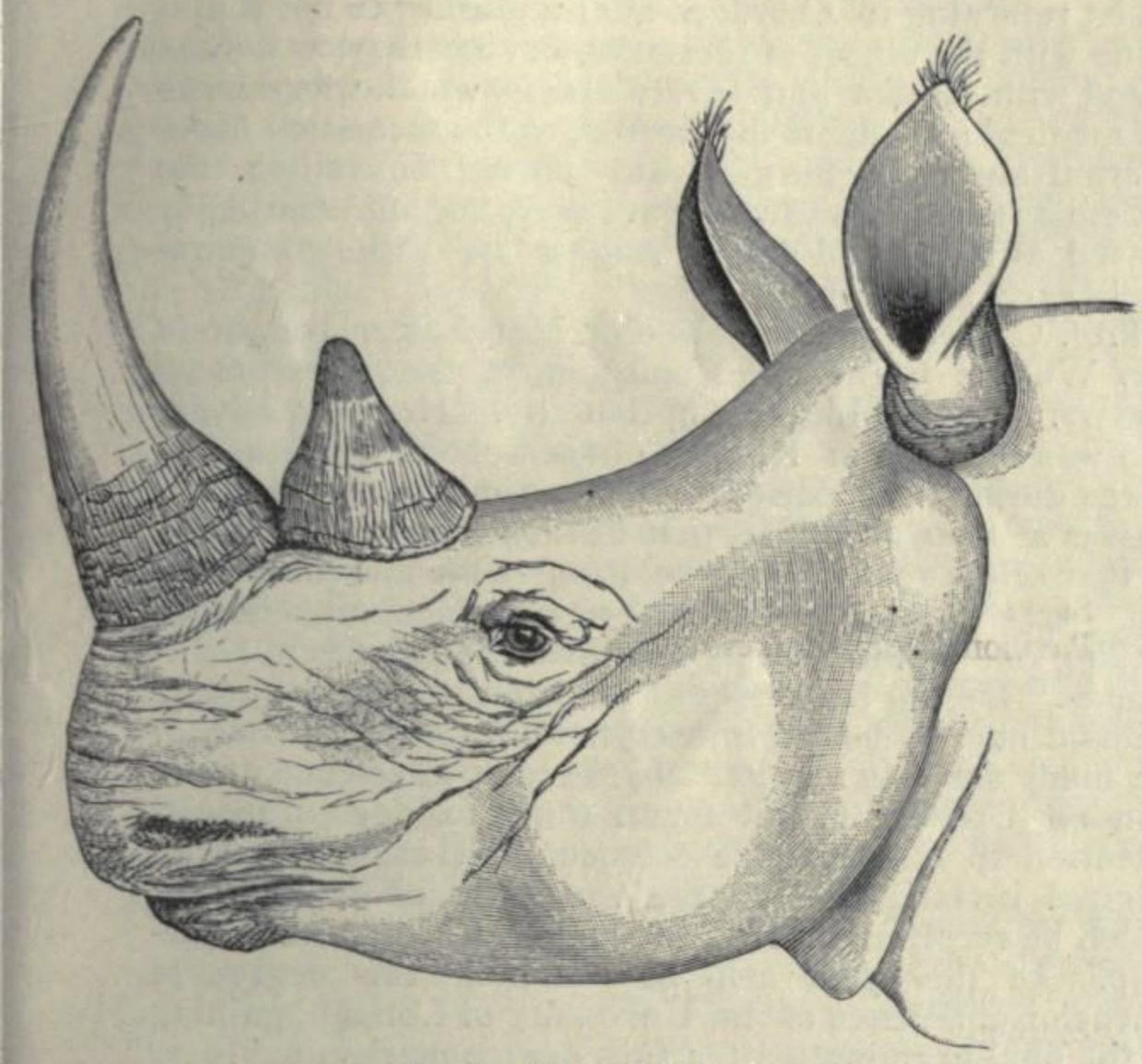

FIG. 1.—Head of *Rhinoceros simus*.

place, as is already well known, the "white" or "square-mouthed" rhinoceros (as it is much better called) is distinguished by its short upper lip. In *R. bicornis* the central portion of the upper lip is far extended, and forms a quasi-prehensile organ. This is sufficiently manifest in the drawing, but may be still better seen in the living example of the same animal now in the Zoological Society's Gardens.

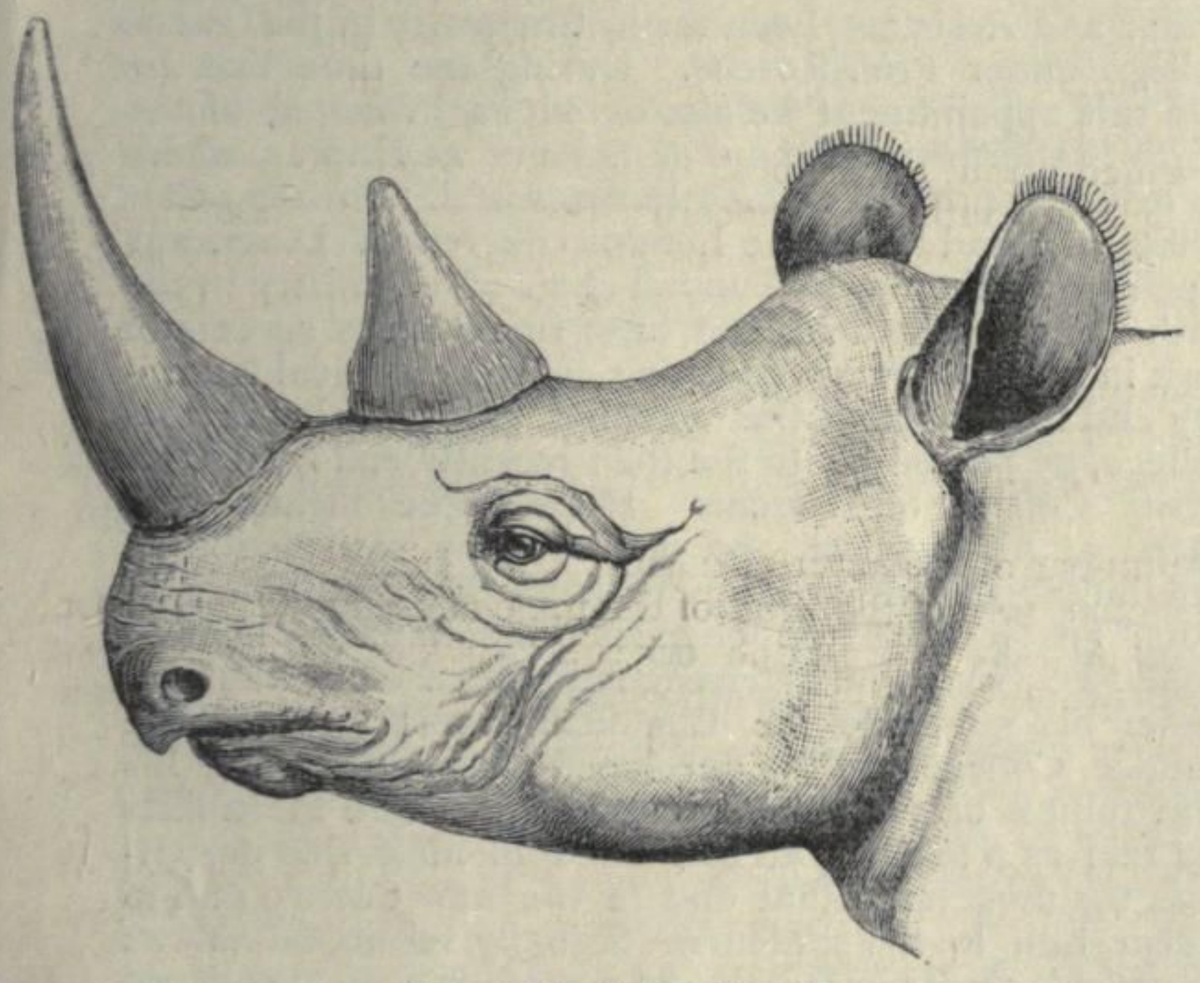

FIG. 2.—Head of *R. bicornis*.

A second point in which the heads of the two African rhinoceroses differ materially is in the size and shape of the ears. In *R. bicornis* (Fig. 2) the ear-conch is much rounded at its extremity, and edged by a fringe of short black hairs which spring from the margin. In *R. simus* (Fig. 1) the ear-conch is much more elongated and sharply pointed at its upper extremity, where the hairs which clothe its margin constitute a slight tuft. While the upper portion of the ear-conch is much more expanded in *R. simus* (than in *R. bicornis*), in the lower portion the two margins are united together for a much greater extent, and form a closed cylinder which rises about 3 inches above the base.

A third point in which the two species appear to differ is in the shape of the nostrils, which in *R. simus* are elongated in a direction parallel with the mouth, while in *R. bicornis* they are more nearly of a circular shape. Again, the eye in *R. simus* appears to be placed further back in the head than in *R. bicornis*.

In conclusion, I wish to call special attention to what Mr. Selous has already said—that no museum in Europe or America possesses a specimen of this huge animal, and to point out that the country, in which alone (as is possible but by no means certain) the last stragglers exist, being now within the British Empire, it is clearly our duty to endeavour to obtain and preserve examples of the great white or square-mouthed rhinoceros for the use and information of posterity.

P. L. SCLATER.

[1] Reduced from P.Z.S., 1886, Pl. xvi.

RECENT RESEARCH AMONG FOSSIL PLANTS.

AN instructive *résumé* of recent work among fossil plants is given by the Marquis de Saporta in the *Revue générale de Botanique*, vol. ii., 1890. It appears that mosses were almost certainly represented in the Palæozoics, a species allied to Polytrichum having been discovered at Commentry, in France. Rarely as the fructification of ferns is preserved in the Coal-measures, twenty species are now investigated, confirming the view that the Palæozoic species differed widely from the present. Half of them are most nearly related to the Marattiaceæ, whilst others show affinities with the Osmundaceæ, Gleicheniaceæ, and Hymenophyllum, the vast order of Polypodiaceæ, and the Cyatheæ being unrepresented. Among the most striking discoveries in the Coal-measures is a fern trunk several yards in length, with its fronds attached. The view that the Calamarias were in part Gymnosperms is all but universally abandoned, and the close affinity of the Lepidodendrons and Sigillarias and their cryptogamic nature everywhere admitted, so that a long controversy is ended, and the truth of Prof. Williamson's contentions definitely established. Links in the chain of evolution between Cryptogams and Gymnosperms still elude our search, and the earliest vegetation of which we have any complete knowledge already presents well-developed Gymnosperms in the shape of the deciduous Cordaïtes, a few Cycads and obscure Taxads allied to Ginkgo. At the same time, we get rid of the very puzzling Spirangium, so often regarded as a possible Palæozoic Angiosperm, but now relegated by MM. Renault and Zeiller to the animal kingdom as the egg of some member of the shark family.

Under the apparently totally dissimilar climatic conditions of the Mesozoic, the overgrown luxuriant vegetation of the coal period is replaced by forests of dry scale-leaved Coniferæ, with undergrowths of small-leaved ferns and Cycads. Fructification shows the presence of Cycadeæ in the infra-Lias, and Polypodieæ in the mid-Jurassic. The researches of Count Solms into the organization of the obscure and extinct Cycad Bennettites, bid fair to clear up another important and hitherto insoluble problem—the true botanical position of Williamsonia. Work in the past year or so has been destructive to a great deal of even recent literature on the geological history of plant evolution, the foundations of all speculative writing on this subject having as yet proved most treacherous sand.

The first appearance of Dicotyledons, once supposed